IN THE CLAIMS

Please cancel claims 38-46 as follows:

1. (PREVIOUSLY PRESENTED) An apparatus for receiving a non-coherently layered modulation signal comprising a lower layer signal non-coherently layered with an upper layer signal, comprising:

a tuner for receiving the non-coherently layered modulation signal and producing a non-coherently layered in-phase signal and a non-coherently layered quadrature signal therefrom;

an analog-to-digital converter for digitizing the non-coherently layered in-phase signal and the non-coherently layered quadrature signal; and

a processor for decoding the non-coherently layered in-phase signal and the non-coherently layered quadrature signal to produce the upper layer signal and the lower layer signal.

2. (ORIGINAL) The apparatus of Claim 1, wherein the processor comprises a logic circuit.

3. (PREVIOUSLY PRESENTED) The apparatus of Claim1, further comprising a first decoder for and decoding the upper layer signal to be displayed, and a second decoder for decoding the lower layer signal.

4. (PREVIOUSLY PRESENTED) The apparatus of Claim 1, wherein decoding by the processor performs frequency acquisition on the non-coherently layered quadrature signal.

5. (PREVIOUSLY PRESENTED) The apparatus of Claim 1, wherein decoding by the processor match filters the non-coherently layered in-phase signal and the non-coherently layered quadrature signal.

6. (CANCELED)

7. (PREVIOUSLY PRESENTED) The apparatus of Claim 1, wherein the processor produces an ideal upper layer signal including an ideal in-phase upper layer signal and an ideal quadrature upper layer signal from the decoded upper layer signal and subtracts the ideal in-phase upper layer signal and the ideal quadrature upper layer signal from the layered in-phase signal and the layered quadrature signal, respectively, to produce a lower layer in-phase signal and a lower layer quadrature signal of a lower one of the one or more discrete layer signals.

8. (PREVIOUSLY PRESENTED) The apparatus of Claim 7, wherein the processor demodulates and decodes the lower layer in-phase signal and the lower layer quadrature signal to produce the lower layer signals.

9. (ORIGINAL) The apparatus of Claim 7, wherein the processor match filters the lower layer in-phase signal and the lower layer quadrature signal.

10. (ORIGINAL) The apparatus of Claim 7, wherein the layered in-phase signal and the layered quadrature signal are delayed to synchronize the subtraction.

11. (ORIGINAL) The apparatus of Claim 10, wherein delaying the layered in-phase signal and the layered quadrature signal are delayed by correlating to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

12. (ORIGINAL) The apparatus of Claim 7, wherein producing the ideal upper layer signal comprises signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

13. (ORIGINAL) The apparatus of Claim 12, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises finite impulse response matched filtering the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

14. (ORIGINAL) The apparatus of Claim 12, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises applying a signal map to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal, the signal map accounting for transmission distortions of the layered signal.

15. (ORIGINAL) The apparatus of Claim 12, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises amplitude and phase matching the ideal in-phase upper layer signal and the ideal quadrature upper layer signal with the layered in-phase signal and the layered quadrature signal, respectively.

16. (PREVIOUSLY PRESENTED) A processor for decoding a non-coherently layered modulation signal comprising a lower layer signal non-coherently layered with an upper layer signal into the upper layer signal and the lower layer signal, comprising:

a first demodulator and first decoder for demodulating and decoding the upper layer signal from the non-coherently layered modulation signal and providing the demodulated and decoded upper layer signal at a first output;

an encoder for generating an ideal upper layer signal from the decoded upper layer signal;

a signal processor for modifying the ideal upper layer signal to characterize transmission and processing effects;

a subtractor for subtracting the modified ideal upper layer signal from the non-coherently layered modulation signal to produce the lower layer signal; and

a second demodulator and second decoder for demodulating and decoding the lower layer signal and providing the decoded lower layer signal at a second output.

17. (PREVIOUSLY PRESENTED) The processor of Claim 16, further comprising a delay function correlated to an output of the signal processor to appropriately delay the non-coherently layered modulation signal to synchronize amplitude and phase matching of the modified ideal upper layer signal and the layered signal.

18. (PREVIOUSLY PRESENTED) The processor of Claim 16, further comprising a delay function correlated to an output of the signal processor to appropriately delay the non-coherently layered modulation signal to synchronize subtraction of the modified ideal upper layer signal and the layered signal.

19. (ORIGINAL) The processor of Claim 16, wherein the signal processor performs finite impulse response matched filtering on the ideal upper layer signal.

20. (ORIGINAL) The processor of Claim 16, wherein the signal processor performs finite impulse response matched filtering on the delayed layered signal.

21. (ORIGINAL) The processor of Claim 16, wherein the signal processor applies a signal map to the ideal upper layer signal.

22. (ORIGINAL) The processor of Claim 16, wherein the signal processor amplitude and phase matches the ideal upper layer signal with the layered signal.

23. (PREVIOUSLY PRESENTED) A method of decoding a non-coherently layered modulation signal comprising a lower layer signal non-coherently layered with an upper layer signal, comprising the steps of:

receiving the non-coherently layered modulation signal and producing a non-coherently layered in-phase signal and a non-coherently layered quadrature signal therefrom;

digitizing the non-coherently layered in-phase signal and the non-coherently layered quadrature signal; and

decoding the digitized non-coherently layered in-phase signal and the non-coherently layered quadrature signal to produce the upper layer signal and the lower layer signal.

24. (ORIGINAL) The method of Claim 23, wherein the step of decoding is performed by a logic circuit.

25. (ORIGINAL) The method of Claim 23, wherein the step of decoding includes frequency acquisition on the layered quadrature signal.

26. (PREVIOUSLY PRESENTED) The method of Claim 23, further comprising receiving and decoding the upper layer signal and the lower layer signal.

27. (PREVIOUSLY PRESENTED) The method of Claim 23, wherein the step of decoding comprises matched filtering the non-coherently layered in-phase signal and the non-coherently layered quadrature signal.

28. (PREVIOUSLY PRESENTED) The method of Claim 23, wherein the step of decoding comprises demodulating and decoding an upper layer signal from the non-coherently layered in-phase signal and the non-coherently layered quadrature signal to produce the upper layer signal.

29. (PREVIOUSLY PRESENTED) The method of Claim 28, wherein the step of decoding comprises producing an ideal upper layer signal including an ideal in-phase upper layer signal and an ideal quadrature upper layer signal from the decoded upper layer signal and subtracting the ideal in-phase upper layer signal and the ideal quadrature upper layer signal from the non-coherently layered in-phase signal and the non-coherently layered quadrature signal, respectively, to produce a lower layer in-phase signal and a lower layer quadrature signal of the lower layer signals.

30. (PREVIOUSLY PRESENTED) The method of Claim 29, wherein the step of decoding comprises demodulating and decoding the lower layer in-phase signal and the lower layer quadrature signal to produce the lower one of the one or more discrete layer signals.

31. (ORIGINAL) The method of Claim 29, wherein the step of decoding comprises match filtering the lower layer in-phase signal and the lower layer quadrature signal.

32. (ORIGINAL) The method of Claim 29, wherein the step of decoding comprises delaying the layered in-phase signal and the layered quadrature signal to synchronize the subtraction.

33. (PREVIOUSLY PRESENTED) The method of Claim 32, wherein delaying comprises correlating the layered in-phase signal and the layered quadrature signal.

34. (ORIGINAL) The method of Claim 29, wherein producing the ideal upper layer signal comprises signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

35. (ORIGINAL) The method of Claim 34, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises pulse shaping the ideal in-phase upper layer signal and the ideal quadrature upper layer signal.

36. (ORIGINAL) The method of Claim 34, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises applying a signal map to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal, the signal map accounting for transmission distortions of the layered signal.

37. (PREVIOUSLY PRESENTED) The method of Claim 34, wherein signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises amplitude and phase matching the ideal in-phase upper layer signal and the ideal quadrature upper layer signal with the non-coherently layered in-phase signal and the non-coherently layered quadrature signal, respectively.

38. (CANCELED)

39. (CANCELED)

40. (CANCELED)

41. (CANCELED)

42. (CANCELED)

43. (CANCELED)

44. (CANCELED)

45. (CANCELED)

46. (CANCELED)